



Docket No. 1232-4478

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Tokunaga

Group Art Unit: 2615

Serial No.: 09/189,010

Examiner: Ye, Lin

Filed: November 9, 1998

For: PHOTOELECTRIC CONVERSION DEVICE, FOCUS DETECTION DEVICE,
METHOD OF CONTROLLING THESE DEVICES, AND STORAGE MEDIUM

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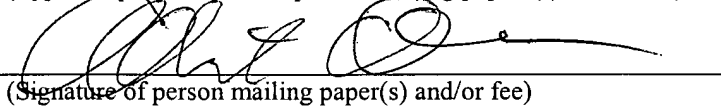
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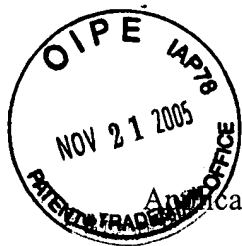
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APPEAL BRIEF/REPLY BRIEF/SUPPLEMENTAL BRIEF TRANSMITTAL

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

- ☒ Transmitted herewith is the Appeal Brief for Appellant(s) which is due on November 23, 2005. The Notice of Appeal was filed on September 23, 2005.
- ☐ Transmitted herewith in triplicate is the Reply Brief for Appellant(s) which is due on _____. The Examiner's Answer was mailed on _____.
- ☐ Transmitted herewith in triplicate is a Supplemental Brief for Appellant(s) which is due on _____ in response to the Office Action reopening prosecution on _____. Appellant(s) hereby request that the appeal of the above-identified application be reinstated.
- ☐ A Petition and Fee for Extension of Time to extend the term for filing the
☐ Appeal Brief ☐ Reply Brief ☐ Supplemental Brief is enclosed.

The item(s) checked below are appropriate:

- ☒ Appeal Fee (Large Entity) - \$500.00
- ☐ Appeal Fee Under 37 CFR §1.9(f) (Small Entity) - \$250.00
- ☐ Fee enclosed (Check for \$_____)
- ☐ Fee not required (Fee paid in prior appeal)
- ☒ Charge fee to Deposit Account No. **13-4500**, Order No. 1232-4478. A
DUPLICATE COPY OF THIS SHEET IS ATTACHED.

☒ The Commissioner is hereby authorized to charge any additional fees which may be required by this paper, or credit any overpayment to Deposit Account No. **13-4500**, Order No. 1232-4478. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

Respectfully submitted,
MORGAN & FINNEGAN, L.L.P.

Dated: November 21, 2005

By: _____

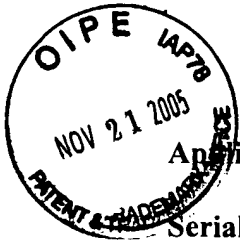

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Docket No. 1232-4478

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JAW



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Tokunaga

Serial No.: 09/189,010

Group Art Unit: 2615

Filed: November 9, 1998

Examiner: Ye, Lin

For: PHOTOELECTRIC CONVERSION DEVICE, FOCUS DETECTION DEVICE,
METHOD OF CONTROLLING THESE DEVICES, AND STORAGE MEDIUM

APPEAL BRIEF UNDER 37 C.F.R. §41.37

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Alexandria, VA 22313-1450

Dear Sir:

Applicant now submits his Appeal Brief in support of his Appeal filed on September 23, 2005. The Commissioner is authorized to charge the requisite fee under §41.20(b)(2) in the amount of \$500.00, and any additional fees necessitated by this Brief to deposit account no. 13-4500 (Order No. 1232-4478).

Applicant respectfully requests that this Brief be fully considered by the Board and that the Examiner's rejection of the claims be reversed for the reasons stated herein.

I. REAL PARTY IN INTEREST

The real party in interest is Canon Kabushiki Kaisha, the assignee of this application.

II. RELATED APPEALS AND INTERFERENCES

Applicant is unaware of any related appeals and/or interferences.

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III. THE STATUS OF CLAIMS

Claims 1-58 were originally presented. Claims 1 and 12 had been previously canceled. Claims 2-11 and 13-58 are pending in this application with claims 4, 5, 15-17, and 23-58 having been withdrawn from consideration by an election pursuant to an imposed restriction requirement. Claims 2, 3, 6-11, 13, 14, and 18-22 are thus under examination and stand rejected. The rejection of these claims is hereby appealed. A complete copy of the claims involved in the appeal, i.e., claims 2, 3, 6-11, 13, 14, and 18-22 (as amended during the course of examination of this application and as finally rejected) is attached hereto.

IV. STATUS OF AMENDMENTS

In response to a first Office Action dated December 19, 2002, which was subsequent to a Restriction Requirement mailed August 27, 2002, an Amendment was filed on March 18, 2003 and entered. Responsive to a Final Rejection dated June 4, 2003, an Amendment was filed on December 4, 2003 along with a Request for Continued Examination. The Amendment was entered.

In response to a Office Action dated January 5, 2004, an Amendment was filed on April 5, 2004 and entered. In response to a Final Rejection dated June 15, 2004, an Amendment filed September 15, 2004, along with a Request for Continued Examination, was entered. Responsive to an Office Action dated November 2, 2004, an Amendment filed February 2, 2005 was entered.

In response to a Final Rejection dated June 24, 2005, a Notice of Appeal was filed September 23, 2005. The corresponding Appeal Brief is here submitted. No Amendments were filed after the Final Rejection dated June 24, 2005. Thus all filed Amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention is, in various aspects, directed towards a photoelectric conversion device which can perform charge accumulation independently of the luminance levels of objects, can read out an image signal by effectively using the dynamic range, and can attain accurate auto-focus, where a memory is provided for each photoelectric conversion element, and a controller controls charge accumulation of the photoelectric conversion element on the basis of control information read out from the memory.

The independent claims involved in the appeal are claims 2 and 14.

Claim 2 is generally directed to a “photoelectric conversion device” (see, for example, Specification p. 24 ln. 1-17).

Claim 2 sets forth “a photoelectric converter including a plurality of photoelectric conversion elements each of which is constructed by a plurality of pixels on a semiconductor substrate” (see, for example, Specification p. 25 ln. 8-14, p. 63 ln. 15-21, and p. 66 ln. 15-17).

Claim 2 further sets forth “a plurality of storage elements arranged on the same semiconductor substrate, each storing predetermined control information employable in controlling a corresponding one of said photoelectric conversion elements, wherein each of said plurality of storage elements includes rewritable memory of which control information employable in controlling an operation of said photoelectric conversion element is rewritable by a predetermined program stored in a program memory” (see, for example, Specification p. 26 ln. 9-12, p. 65 ln. 20 – p. 66 ln. 2, and p. 66 ln. 15-17).

Claim 2 additionally sets forth “a controller, wherein said controller controls charge accumulation of said photoelectric converter on the basis of the control information

stored in said storage elements” (see, for example, Specification p. 24 ln. 20 – p. 25 ln. 6 and p. 65 ln. 20 – p. 66 ln. 2).

Claim 14 is generally directed to a “method of controlling charge accumulation of a plurality of photoelectric conversion elements each of which is constructed by a plurality of pixels” (see, for example, Specification p. 24 ln. 20 – p. 25 ln. 6, p. 25 ln. 8-14, and p. 63 ln. 15-17).

Claim 14 sets forth “reading out respective control information from a plurality of memories each of which is corresponding to respective one of said photoelectric conversion elements, and respectively controlling the charge accumulation of each of said photoelectric conversion elements on the basis of respective control information, wherein charge accumulation operations of a plurality of photoelectric converters are controlled on the basis of control information in a plurality of memories” (see, for example, Specification p. 24 ln. 20 – p. 25 ln. 6, p. 26 ln. 9-12, and p. 65 ln. 20 – p. 66 ln. 2).

Claim 14 further sets forth “rewriting respective control information employable in controlling an operation of said photoelectric conversion element in said plurality of memories by a program stored in a program memory” (see, for example, Specification p. 24 ln. 20 – p. 25 ln. 6, p. 26 ln. 9-12, and p. 65 ln. 20 – p. 66 ln. 2).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issues on appeal are whether claims 2, 3, 6-11, 13, 14, 18-20, and 22 would have been obvious under 35 U.S.C. 103(a) as being unpatentable over Iwasaki (U.S. Patent No. 5,497,215) in view of Hirt (U.S. Patent No. 5,883,830), and whether claim 21 would have been obvious under 35 U.S.C. 103(a) as being unpatentable over Iwasaki in view of Hirt and Akashi (U.S. Patent No. 5,615,399). Claims 2 and 14 are independent.

VII. ARGUMENT

A. Claims 2, 3, 6-11, 13, 14, 18-20, and 22 Are Not Obvious Over Iwasaki in

View of Hirt

Subsequent to a Restriction Requirement mailed August 27, 2002, a first Office Action dated December 19, 2002, a Final Rejection dated June 4, 2003, and Applicant's responses thereto, an Office Action dated January 5, 2004 was issued.

The Office Action rejected claims 1-3, 6-14, 18-20, and 22 under 35 U.S.C. 103(a) as being unpatentable over Iwasaki in view of Hirt. With regard to then-pending independent claims 1 and 12, the Examiner argued, in relevant part, that Iwasaki disclosed "a plurality of storage means ... each for storing predetermined control information for controlling corresponding photoelectric conversion element" via "first accumulation control part 16 and second accumulation control part 17".

In response, Applicant filed an Amendment on April 5, 2004. In the Amendment independent claims 1 and 12, each of which had been previously amended, were further amended.

The Amendment included, *inter alia*, Applicant's arguments that Iwasaki and Hirt, taken individually or in combination, failed to disclose, teach, or suggest, for instance, the "storage means includ[ing] rewritable memory" of claim 1 or the "plurality of memories" of claim 12.

Responsive to the Amendment filed April 5, 2004, a Final Rejection dated June 15, 2004 was issued. In the Final Rejection, the Examiner maintained the rejection of claims 1-3, 6-14, 18-20, and 22 under 35 U.S.C. 103(a), and, in relevant part, again argued that Iwasaki disclosed "a plurality of storage means ... each for storing predetermined control information

for controlling a corresponding photoelectric conversion element” via “first accumulation control part 16 and second accumulation control part 17”. The Examiner, in further relevant part, argued that Hirt disclosed a memory for storing the “control information” of each of independent claims 1 and 12 via “flash programmable memory (14)”.

In response, Applicant filed an Amendment on September 15, 2004. In the response, independent claims 1 and 12 were canceled. Also, claims 2 and 14, previously depending from claims 1 and 12 respectively, were cast as independent claims, each including that which had been set forth in the claim from which it had previously depended.

The response further included, *inter alia*, Applicant’s arguments that Iwasaki and Hirt, taken individually or in combination, failed to disclose, teach, or suggest, for instance, “controlling charge accumulation of said photoelectric conversion means on the basis of the control information stored in said storage means” as set forth in claim 2, or “controlling charge accumulation operations of a plurality of photoelectric conversion means equivalent to said photoelectric conversion means on the basis of control information in a plurality of memories equivalent to said memory” as set forth in claim 14.

Additionally, the response included Applicant’s arguments that the memory of Hirt referenced by the Examiner included “configuration information” which was not the same as the “control information” of claims 2 and 14, and that this memory of Hirt including “configuration information” was not disclosed, taught, or suggested to form any basis for controlling a photoelectric conversion element.

In response to the Amendment filed September 15, 2004, an Office Action dated November 2, 2004 was issued, the Office Action rejecting claims 2, 3, 6-11, 13, 14, 18-20, and 22 under 35 U.S.C. 103(a) as being unpatentable over Iwasaki in view of Hirt.

In the Office Action the Examiner, in relevant part, argued that Iwasaki disclosed “control information stored in said storage means” for “controlling charge accumulation of said photoelectric conversion means” via “first accumulation control circuit 16 and second accumulation control part 17”, as “both control circuits 16 and 17 store the photometry information from A/D converter 11”.

In further relevant part, the Examiner argued that Hirt disclosed “a flash programmable memory (14) that has portions (reference numeral 24) for storing compensation and configuration values”, and “ ‘control means’ to control ‘charge accumulation of photoelectric conversion means’ ” via “configuration means in the flash programmable memory (14)”, with “a flash programming signal [being transmitted] (on the basis the information stored in the flash programmable memory 14) to a gate of driver transistor 306”.

In response, Applicant filed an Amendment on February 2, 2005 in which the claims were amended to their present form. The response further included, *inter alia*, Applicant’s arguments that the elements denoted by numerals 16 and 17 merely receive the signal from A/D converter 11, and that there is no disclosure, teaching, or suggestion in Iwasaki that they provide storing functionality.

The response further included, *inter alia*, Applicant’s arguments that the programming signal applied to the gate of transistor 306 merely controls the level of the signal read out from that transistor when fed, as input, the output of the photo diode once the accumulation operation of that photo diode has been completed. Applicant noted that there was no disclosure, teaching, or suggestion in Hirt that the programming signal controlled accumulation operation of the photo diode itself.

In response to the Amendment, a Final Rejection dated June 24, 2005 was issued. In the Final Rejection the Examiner, in relevant part, argued that Iwasaki disclosed “both accumulation circuits 16 and 17 receiving photometry information from the photometry region which was converted to digital signals by the A/D converter for controlling the accumulation time of the charge accumulation” and that “[f]or this reason, the accumulation control circuits 16 and 17 can be considered as the storage elements”.

The Examiner, in further relevant part, argued that “the Hirt reference indicates the flash programmable memory 14 supplying the programming signal applied to the gate of the driver transistor 306 as shown in Figures 4-6 to control image signal levels accumulated by each pixel” by way of disclosing “the programming signal controlling images signal levels”.

In response, Applicant filed a Notice of Appeal on September 23, 2005.

Thus, in one aspect, the Examiner, in sum, contends that Iwasaki discloses, for example:

“... a controller, wherein said controller controls charge accumulation of said photoelectric converter on the basis of the control information stored in said storage elements”

as set forth in independent claim 2 (emphasis added), and

“...reading out respective control information from a plurality of memories each of which is corresponding to respective one of said photoelectric conversion elements, and respectively controlling the charge accumulation of each of said photoelectric conversion elements on the basis of respective control information”

as set forth in independent claim 14 (emphasis added).

As previously discussed by Applicant, Iwasaki provides no such disclosure, teaching, or suggestion.

The Examiner has apparently been arguing that “first accumulation control part 16” and “second accumulation control part 17” of Iwasaki act as storage elements because they receive information.

Applicant respectfully disagrees with this position. Previous arguments made by Applicant, such as those recognizing that first accumulation control part 16 and second accumulation control part 17 receive signal from the A/D converter 11 but noting that there is no disclosure, teaching, or suggestion that first accumulation control part 16 and second accumulation control part 17 provide storing functionality, have set forth, for example, that merely receiving a signal does not constitute acting as a storage element.

In another aspect the Examiner, in sum, apparently contends that Hirt discloses, for example:

“... a controller, wherein said controller controls charge accumulation of said photoelectric converter on the basis of the control information stored in said storage elements”

as set forth in independent claim 2 (emphasis added), and

“...reading out respective control information from a plurality of memories each of which is corresponding to respective one of said photoelectric conversion elements, and respectively controlling the charge accumulation of each of said photoelectric conversion elements on the basis of respective control information”

as set forth in independent claim 14 (emphasis added).

As previously discussed by Applicant, Hirt provides no such disclosure, teaching, or suggestion.

The Examiner has apparently been arguing, with reference to drive transistor 306 of Fig. 5 and col. 7 lines 15-45 of the reference, that the programming signal supplied along line

316 controls charge accumulation of photo diode 302 by controlling image signal level produced by that photo diode, and that the programming signal is supplied by programmable memory 14.

Applicant respectfully disagrees with this position. As previously discussed by Applicant, the programming signal applied to the gate of drive transistor 306 does not, for instance, have any effect upon the way in which photo diode 302 operates to produce a signal. Instead, the programming signal affects the way in which drive transistor 306 produces output when fed, as an input, photo diode 302's unaffected output. Also as previously set forth by Applicant, Hirt does not disclose, teach, or suggest that memory 14 forms any basis for controlling a photoelectric conversion element.

Thus, as pointed out previously, the cited references, taken individually or in combination, fail, for example, to disclose, teach, or suggest the above-identified of claim 2 or the above-identified of claim 14. Accordingly, Applicant respectfully submits that the Examiner has failed to provide a proper rejection under 35 U.S.C. 103 of independent claims 2 and 14, and those claims that depend therefrom.

B. Claim 21 Is Not Obvious Over Iwasaki in View of Hirt and Akashi

As discussed above, Applicant believes that the Examiner has failed to provide a proper rejection under 35 U.S.C. 103 of independent claims 2 and 14.

For at least the same reasons, Applicant respectfully submits that the rejection of claim 21, which depends from claim 2, is also improper.

CONCLUSION

The Examiner has found no reference or references that individually or in combination disclose, teach, or suggest the claimed invention, and Applicant believes that all pending claims are allowable. Applicant therefore respectfully requests that the Examiner's rejection be reversed.

AUTHORIZATION

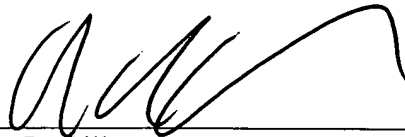
The Commissioner is hereby authorized to charge any fees which may be required for this Appeal Brief, or credit any overpayment to Deposit Account No. 13-4500, Order No. 1232-4478. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Furthermore, in the event that an extension of time is required, the Commissioner is requested to grant a petition for that extension of time which is required to make this submission timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to the above-noted Deposit Account and Order No.

Respectfully submitted,

MORGAN & FINNEGAN, L.L.P.

By:



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Date: November 21, 2005

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VIII – CLAIMS APPENDIX

2. (Previously Presented) A photoelectric conversion device comprising:

a photoelectric converter including a plurality of photoelectric conversion elements each of which is constructed by a plurality of pixels on a semiconductor substrate;

a plurality of storage elements arranged on the same semiconductor substrate, each storing predetermined control information employable in controlling a corresponding one of said photoelectric conversion elements, wherein each of said plurality of storage elements includes rewritable memory of which control information employable in controlling an operation of said photoelectric conversion element is rewritable by a predetermined program stored in a program memory; and

a controller, wherein said controller controls charge accumulation of said photoelectric converter on the basis of the control information stored in said storage elements.

3. (Previously Presented) The device according to claim 2, wherein said photoelectric converter further includes a monitor, wherein said monitor monitors an accumulated charge state in said photoelectric conversion element, and

said controller includes a selector, wherein said selector selects an arbitrary one of a plurality of pieces of status information on the basis of the control information stored in said storage elements, and a comparator, wherein said comparator compares an output from said monitor with the status information selected by said selector, and controls the charge accumulation of said photoelectric converter on the basis of a comparison result of said comparator.

6. (Previously Presented) The device according to claim 2, further comprising a plurality of photoelectric converters equivalent to said photoelectric converter.
7. (Previously Presented) The device according to claim 3, wherein said monitor monitors and outputs information based on a maximum accumulated charge amount of said photoelectric conversion element.
8. (Previously Presented) The device according to claim 3, wherein said controller stores the status information selected by said selector in said storage elements as the control information.
9. (Previously Presented) The device according to claim 2, wherein said photoelectric converter is constructed by forming said photoelectric conversion element and storage elements on a single substrate.
10. (Previously Presented) The device according to claim 2, wherein said controller includes a circuit, wherein said circuit determines predetermined information on the basis of said output from said monitor, and stores the information determined by said circuit in said storage elements as the control information.
11. (Previously Presented) The device according to claim 3, wherein said controller includes a circuit, wherein said circuit determines predetermined information on the basis of said output from said monitor, and stores the information determined by said circuit in said storage elements as the control information.

13. (Previously Presented) The method according to claim 14, further comprising:

monitoring and outputting an accumulated charge state in said photoelectric conversion element;

selecting an arbitrary one of a plurality of pieces of status information on the basis of the control information read out from said memory;

comparing the outputted accumulated charge state with the selected status information; and

controlling the charge accumulation of said photoelectric conversion element on the basis of a comparison result of said comparing.

14. (Previously Presented) A method of controlling charge accumulation of a plurality of photoelectric conversion elements each of which is constructed by a plurality of pixels, comprising:

reading out respective control information from a plurality of memories each of which is corresponding to respective one of said photoelectric conversion elements, and respectively controlling the charge accumulation of each of said photoelectric conversion elements on the basis of respective control information, wherein charge accumulation operations of a plurality of photoelectric converters are controlled on the basis of control information in a plurality of memories; and

rewriting respective control information employable in controlling an operation of said photoelectric conversion element in said plurality of memories by a program stored in a program memory.

18. (Previously Presented) The method according to claim 13, further comprising monitoring and outputting information based on a maximum accumulated charge amount of said photoelectric conversion element.

19. (Previously Presented) The method according to claim 13, further comprising storing the selected status information in said memory as the control information.

20. (Previously Presented) The method according to claim 14, further comprising determining predetermined information on the basis of an accumulated charge signal read out from said photoelectric conversion element, and storing the determined information in said memory as the control information.

21. (Previously Presented) A focus detection device including a photoelectric conversion device of claim 2.

22. (Previously Presented) A storage medium which computer-readably stores program code corresponding to a control method of claim 14.

IX – EVIDENCE APPENDIX

None

X – RELATED PROCEEDINGS APPENDIX

None